

3.—The genus *Cethegus* Thorell (Mygalomorphae : Macrothelinae)

By Barbara York Main*

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The Macrothelinae occurring in Australia are reviewed. The species *Stenygrocerus broomi* Hogg and *Palaevagrus fugax* Simon are shown to be con-generic with *Cethegus lugubris* Thorell. *Cethegus*, the prior name therefore stands for the genus. *Macrothele aculeata* Urquhart is shown to be a misidentified Ctenizid. The New Caledonian species, *Stenygrocerus silvicola* (Simon) is also considered to belong in the genus *Cethegus*. Natural history notes are also recorded for *Cethegus fugax* (Simon).

Introduction

In the group Macrothelinae (Family Dipluridae, Sub-family Macrothelinae), four genera, each with one species, have been recorded as occurring in Australia. These are: *Cethegus lugubris* Thorell (1881), *Macrothele aculeata* Urquhart (1893), *Stenygrocerus broomi* Hogg (1901) and *Palaevagrus fugax* Simon (1908). Examination and comparison of the type specimens of *C. lugubris*, *S. broomi* and *P. fugax* shows that these species are con-generic. Thorell's name *Cethegus* is the prior name and *Palaevagrus* becomes a synonym. *Stenygrocerus silvicola* (Simon) from New Caledonia was originally placed in the genus *Macrothele* (Simon 1889) but Simon later made it the type species of the new genus *Stenygrocerus* (Simon 1892). This species also should be included in the genus *Cethegus*. Berland (1924) attributed a male specimen to this species. The specimen described by Urquhart (1893) as *Macrothele aculeata* was a Ctenizid (to be discussed in another paper).

The present paper redefines the genus *Cethegus*, reviews the Australian species, describes the male of *C. fugax* and records natural history observations.

Taxonomy

Simon (1892, p. 185) suggested that *Cethegus* was probably a synonym of either *Atrax* or *Hadronyche* and Roewer (1942) placed *Cethegus* with the Atracidae. Genera of the Atracidae have relatively short, bluntly pointed posterior spinnerets and teeth on both margins of the cheliceral furrow whereas *Cethegus* has long tapering posterior spinnerets and teeth on the inner margin of the cheliceral furrow only (except a few small basal teeth on outer margin). Roewer (1942) lists *Stanwellia* Rainbow and *Pulleine*, with the Macrothelae; but the presence of a double row of teeth on the upper tarsal claws establishes its position in the sub-family Diplurinae.

*Zoology Department, University of Western Australia, Nedlands, Western Australia.

Cethegus Thorell 1881

Type species: *Cethegus lugubris* Thorell 1881.

References and Synonymy†

- Cethegus* Thorell 1881. Ann. Mus. Civ. Genova. **17**, pp. 240-1 (nov. gen.).
Simon 1892. Hist. Nat. des Araign. **1**, pp. 183, 186.
Hogg 1901. Proc. Zool. Soc. Lond. **1901** (2), p. 265.
Bonnet 1956. Bibliographia Araneorum (Toulouse), p. 1027.
Macrothele (in part) Simon 1888. Ann. Soc. Ent. France (6) **8**, p. 245.
Palaevagrus Simon 1908. Fauna Südwest-Austral. **1**, p. 365 (nov. gen.).
Bonnet 1958. Bibliographia Araneorum (Toulouse), p. 3301.
Stenygrocerus Simon 1892. Hist. Nat. des Araign. **1**, pp. 182, 183, 185 (nov. gen.).
Simon 1903. Hist. Nat. des Araign. (Supplement) p. 968.
Hogg 1901. Proc. Zool. Soc. Lond. **1901** (2), pp. 265, 270.
Berland 1924. Nova Caledonia (Sarasin and Roux), pp. 173-4.
Bonnet 1958. Bibliographia Araneorum (Toulouse), p. 4157.

Diagnosis.—Flattish carapace with the eyes raised in a small transverse compact group. Pit-like fovea sometimes distinctly recurved. Geniculate chelicerae, teeth on inner margin of furrow only (except sometimes a few small basal teeth on outer margin). Labium almost square, no cuspules. Maxillae without cuspules or spinules. Legs without scopulae in female, male with sparse scopulae. All tarsi with ventral spines. Posterior spinnerets long and flexible, but without subarticulations and not exceeding length of abdomen. Male lacks any processes on the legs.

Cethegus lugubris Thorell 1881

- Cethegus lugubris* Thorell 1881. Ann. Mus Civ. Genova. **17**, pp. 241-3.
Simon 1892. Hist. Nat. Araign. **1**, p. 186.
Hogg 1901. Proc. Zool. Soc. London **1901** (2), p. 265.
Bonnet 1956. Bibliographia Araneorum (Toulouse), p. 1027.

†In the literature listed here and also under the species names references which are to catalogue lists are only given for Bonnet, which includes a comprehensive bibliography.

Types.—Three specimens comprising one female, one male in penultimate instar and one juvenile, in the Civic Museum Genova. Collected by L. M. D'Albertis in 1875 from Somerset, Cape York, Queensland. These specimens are in spirit, in the one vial, and are all in deteriorated condition as already reported by Thorell. All type specimens a deep reddish-purple (plum) colour with the maxillae and labium yellowish; abdomen without any dorsal pattern. Carapace length of female 8.0 mm, width 7.9 mm. This is thought to be the specimen described by Thorell. The carapace lengths of the immature male and juvenile specimens 6.5 mm and 5.0 mm respectively.

Two specimens in the author's collection, from Reedys and Cundeelee, Western Australia were also a deep purple colour in life and are tentatively identified as *lugubris*. The present author also collected four small specimens which probably belong to *lugubris*, in the MacPherson Ranges, New South Wales, near the south base of Mt. Lindsay, nearly two miles south of the State boundary on the road which passes through the border check.

No male specimens are known.

Cethegus broomi (Hogg) 1901

Stenygrocerus broomi Hogg, 1901. Proc. Zool. Soc. Lond. 1901 (2), pp. 270-3. Text-fig. 38.

Bonnet 1958. Bibliographia Araneorum (Toulouse), p. 4157.

Types.—One female and one juvenile in the British Museum of Natural History. Collected by Dr. Broome from Hillgrove, New South Wales. Specimens in spirit. Specimens a uniform dark brown. Abdomen of adult with a faint dorsal pattern of three chevrons. Carapace length of adult 9.0 mm, width 7.0 mm. Spinnerets of the adult specimen asymmetrical, right posterior spinneret shorter than left and appears to have been regenerated.

No male specimens are known.

Cethegus fugax (Simon) 1908

Palaevagrus fugax Simon, 1908. Fauna Südwest-Austral. 1, p. 365.

Bonnet, 1958. Bibliographia Araneorum (Toulouse), p. 3301.

Types.—Two specimens mentioned by Simon in his description of *Palaevagrus fugax*, from Lion Mill and Geraldton, Western Australia. Collected by the "Hamburger südwest-australische Forschungreise, 1905." The Geraldton specimen (examined by the author) now in the Museum at Berlin.

The specimen seen was a juvenile in spirit. Carapace length 4.0 mm. Generally a uniform light brown colour. Male allotype (herein designated) collected by the author, 3 miles east of Byford on 8th March, 1959. To be deposited in the Western Australian Museum.

Diagnosis.—**Female:** Indistinguishable from *broomi* and also from *lugubris* except possibly on colour. *Fugax* in life a light dusty brown colour. Possibly *lugubris* tends to have more numerous and heavier tarsal spines than *fugax*

but more specimens of *lugubris* require examination. Size variable. The following measurements given are of a female specimen, from the same locality as allotype, selected from the author's collection, to be given to the Western Australian Museum. Carapace length, 5.3 mm. Leg lengths respectively: I, 10.8 mm; II, 11.5 mm; III, 13.6 mm; IV, 17.0 mm; Palp, 7.8 mm. The leg formula (obtained by dividing the length of the leg by the length of the carapace) is thus as follows:

4	3	2	1
3.4	2.6	2.2	2.0

Spines are present on the lateral edges of the ventral aspect of all tarsi including palp tarsus, ventrally on metatarsus I and II, and on all aspects of metatarsi III and IV. All segments of all legs have numerous long hairs and bristles. In many instances the bristles are scarcely distinguishable from spines. The largest specimens observed had a carapace length of 6.0 mm. A live specimen is illustrated in Fig. 1, Fig. 2A gives dorsal view of animal, Fig. 2B profile aspect, Fig. 2C sternum, Fig. 2D, spinnerets.

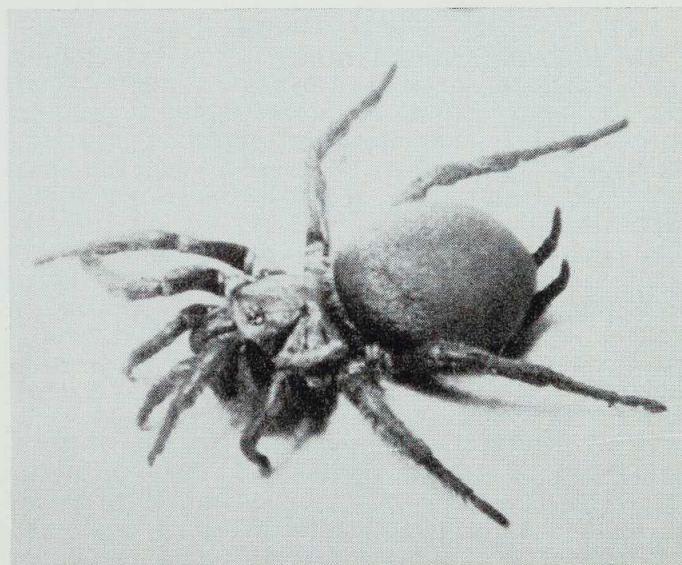


Fig. 1.—*Cethegus fugax* (Simon), female specimen. Photograph B. Y. Main.

Male.—Apart from sexually functional external characters, such as the male palp, dimorphism is not conspicuous. However the legs are proportionately longer (see formula below) and scopulae are well developed on the tarsi of the third and fourth legs and divided by a medial line of bristles. A few scopulate hairs present on tarsi of first and second legs. Male animals brown, slightly darker than females, with a faint golden sheen on hairs in life.

Carapace length of allotype 6.0 mm, of other specimens examined 5.0, 5.3, 5.6, 5.7, 5.7 and 5.9 mm. Palp as in Fig. 2E. First legs (Fig. 2F) and second legs without any modifications or pro-

cesses. Leg lengths of allotype as follows: I, 16.7 mm; II, 17.5 mm; III, 19.6 mm; IV, 24.1 mm. Leg formula:

4	3	2	1
4.0	3.3	2.9	2.8

Spines are present on the same leg segments as in the female. No spines present on palp. Legs generally with dense covering of long hairs and bristles.

Localities of specimens in author's collection.

Females and juveniles.—WESTERN AUSTRALIA: Balladonia, 43 miles east on Eyre Highway, 1; Bullsbrook, 7 miles from on Chittering Valley Road, 1; Byford, 3 miles east, 5; Canna, 1; Carilla, 2; Coolgardie, 27 miles west, 1; Gidgegannup, 1; Merredin, 1; Mokine, 3; Moonera Tank, 13 miles west, 1; Morawa, 1; Norseman, 1; Norseman, 3 miles south, 1; Paynes Find, 4 miles west, 1; Perth, 15 miles east on Red Hill Road, 1; Queen Victoria Spring, 11 miles South West, 1; Wialki, 1; Widgiemooltha, 1; Zanthus, 6 miles west, 1. SOUTH AUSTRALIA: Between Port Kenny and Streaky Bay, 2; Streaky Bay, 3; Warrachie, 3; Wilpena Pound, 1.

Males.—WESTERN AUSTRALIA: Beverley, 1; Byford, 3 miles east, 6 (includes allotype).

Natural History

Habitat.—Specimens of *Cethegus fugax* have been observed in varying types of habitats. In the southern part of the sclerophyllous (jarrah) forest region (see Gardner 1944) of Western Australia they occur in greater density than anywhere else. Here webs are found on lightly lateritic soils, attached to logs and small herbs and also along the barren banks of roads where they sometimes present an almost continuous shimmering blanket of web several chains in extent. Further east in the savanah and sclerophyllous woodland zones (Gardner 1944) only isolated webs have been sighted. Again they are usually associated with gravelly or stony soils or sometimes yellow sands. On the Nullarbor Plain and Eyre Peninsular, burrows occur on stony limestone soil which has light cover of litter. In south-western Western Australia *Cethegus* has not been found in the wet karri forest (Mesophytic Forest region of Gardner) nor in the wetter southern part of the jarrah region, which have a dense understory and ground cover.

The burrows of *Cethegus lugubris* observed by the author in the MacPherson Ranges were amongst exposed roots of trees in an overhanging bank of a valley in the jungle.

Life History.—Life history data are only available for *C. fugax* and this is very slight. J. A. L. Watson found a male specimen under a stone, in June 1957. The author collected five recently matured male specimens from their burrows near Byford on 8th March, 1959. Presumably these specimens would have run with the onset of autumn rain in April or May. A sixth male was collected from Byford on 31st August, 1959. It is thought that this animal remained in its burrow until the end of winter, due to the extraordinarily dry season. No egg cocoons have

been observed but juvenile specimens were seen in two adult burrows at Mokine on 23rd March, 1959. It is assumed that these hatched from egg cocoons during the summer. From analogy with life history patterns of other Mygalomorphae where the seasonal sequence has been documented it is suggested that for *Cethegus fugax* the seasonal behaviour would be as follows: Mating in late autumn through to early winter, i.e., depending on onset of rain with appropriate temperature; egg laying late spring to early summer, eggs hatch mid-summer and juveniles vacate female burrows after first autumn or winter rains.

Since *C. lugubris* occurs in a region of summer rain with a dry winter period it is probably a summer mating spider.

Web and burrow.—The web of *Cethegus fugax* consists of a central portion of vertical soil-covered strands. These are attached at their upper ends to low shrubs, the bases of trees, projections of soil or rocks, to the sides of logs or overhang in banks, depending on the habitat. Such strands formed from the silk bound bundles of soil excavated from the burrow present a dense curtain like structure. Radiating from this section of the web are numerous threads extending for several inches. These unsoiled threads acting as "trap-lines" for catching prey, form an extraordinarily dense mass, within which are several funnel like tubes opening near the surface. Within the centre of the web or below the ground these tubes unite and terminate in a single poorly defined burrow, lacking any plastering, reinforcement or closely woven silk lining to the walls. Rejectamenta and cast skins are frequently found in the older parts of the webs. Burrows of penultimate instar and mature males have no "trap-lines" and the untidy mass of partly collapsed soil coated threads appears like an unoccupied nest. Also the burrow terminates in a symmetrical, smooth walled tube, in which possibly the male may seal itself off during the penultimate instar.

Specimens of *Cethegus lugubris*, collected by the author were taken from webs similar in structure to those of *fugax*.

Discussion

The occurrence of *Cethegus* in south western Australia is of interest since it is the only Macrotheline genus known to occur west of the Eyre Peninsular. *Hadronyche* has been collected by the author (unpublished) in the Flinders Ranges and Eyre Peninsular in South Australia. Further east the Macrothelinae are a prominent component of the Mygalomorph fauna extending from Cape York to Tasmania. It is also of interest that the genus *Cethegus* has a continent-wide range and occurs in varied habitats.

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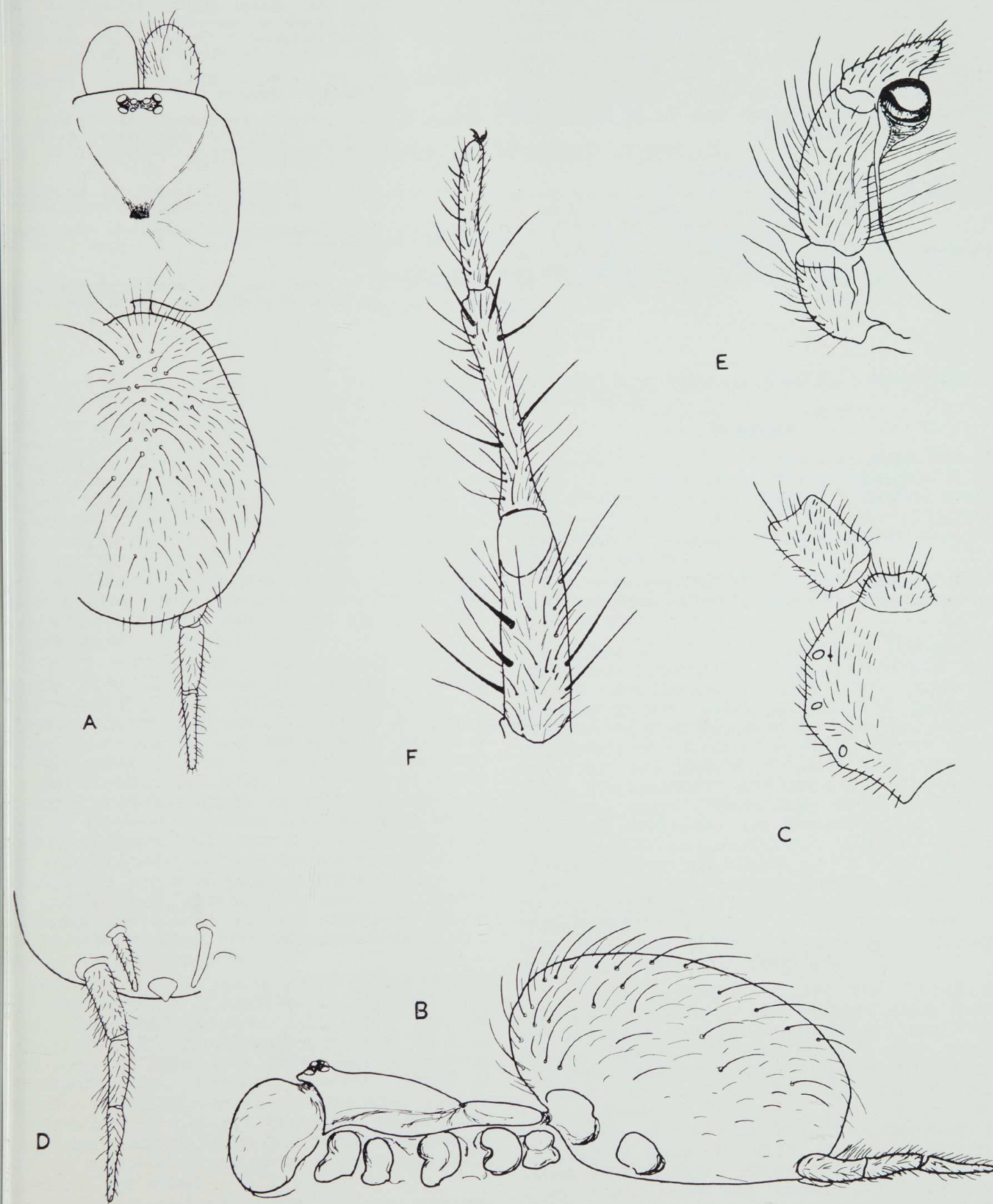


Fig. 2.—*Cethegus fugax* (Simon).

A, dorsal aspect, female. B, left lateral aspect, female. C., sternum, labium, right maxilla, female. D, spinnerets, female. E, right palp retrolateral aspect, male. F, tarsus, metatarsus, tibia of right leg, male.

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